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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/774,711	02/09/2004	Nidham Ben Rached	MTR.0049US	9556

21906 7590 05/01/2007

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EXAMINER	
TRAN, KHANH C	

ART UNIT	PAPER NUMBER
2611	

MAIL DATE	DELIVERY MODE
05/01/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/774,711	BEN RACHED ET AL.	
	Examiner	Art Unit	
	Khanh Tran	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3, 5, 7-9,11-14, 16, 18-20, 22-33* is/are rejected.

7)☒ Claim(s) *4,6,10,15,17 and 21* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 May 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

1. Claim 23 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

The claimed "*a computer program*" to be installed in a radio communication receiver is not non-statutory subject matter. See MPEP 2106.01 **>Computer-Related Nonstatutory Subject Matter< [R-5] under I. FUNCTIONAL DESCRIPTIVE MATERIAL: "DATA STRUCTURES" REPRESENTING DESCRIPTIVE MATERIAL *PER SE* OR COMPUTER PROGRAMS REPRESENTING COMPUTER LISTINGS *PER SE*

> *Since a computer program is merely a set of instructions capable of being executed by a computer, the computer program itself is not a process and USPTO personnel should treat a claim for a computer program,* ***without the computer-readable medium*** *needed to realize the computer program's functionality*, as nonstatutory functional descriptive material. When a computer program is claimed in a process where the computer is executing the computer program's instructions, USPTO personnel should treat the claim as a process claim. See paragraph IV.B.2(b), below. When a computer program is recited in conjunction with a physical structure, such as a computer memory, USPTO personnel should treat the claim as a product claim. See paragraph IV.B.2(a), below.

The Examiner suggests Applicants to amend claim to include: "a computer readable medium encoded with a computer program to be installed in a radio communication receiver ...". In addition, the computer readable medium also needs to be defined in the specification, e.g. computer readable medium may include floppy

diskettes, optical disks, CD-ROMs ROMs, RAMs, EPROMs, EEPROMs, flash memory

...

2. Claims 24-33 are also rejected because dependency on claim 23.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-3, 5, 7-9, 11-14, 16, 18-20, 22-25, 27, 29-31 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nara U.S. Patent 5,978,414 in view of Cox et al. U.S. Patent Application Publication No. 2003/0058929A1.

Regarding claim 1, Nara invention is directed a method and system for determining an actual transmission rate of an encoded communication, which has been transmitted at one of a plurality of transmission rates.

In column 20 lines 30-45, Nara teaches a method for determining an actual transmission rate of an encoded communication transmitted at one of a plurality of transmission rates comprising the steps of decoding said encoded communication at said plurality of transmission rates to generate a plurality of decoded signals; determining a decoding reliability parameter corresponding to each of said decoded signals; and identifying one or more candidate transmission rates at which said encoded communication has been reliably decoded based upon said decoding reliability

parameters, wherein said identifying is performed by comparing said decoding reliability parameters with threshold values. Furthermore in FIG. 5, Nara teches a CDMA receiver including finger circuits 202 203 and 204, taking into account multipath components; see column 17 lines 10-35.

Hence, in view of the foregoing disclosure, because the decoding reliability parameters are compared with threshold values, one ordinary skill in the art at the time the invention was made would have recognized that the decoding reliability parameters can be modified to include the claimed confidence criterion.

Nara, however, does not teach when the reliability parameter evaluated does not satisfy a confidence criterion, calculation of a refined estimate of the symbol by taking into account at least one additional propagation path as claimed in the application claim.

Cox et al. invention provides a method and apparatus for adaptive processing in a communication system receiver. The adaptive processing facilitates power savings and permits enhanced performance when necessary.

In paragraph [0086], as shown in FIG. 5, Cox et al. teaches a RAKE receiver including several correlators 510, each of which is coupled to a combiner 516. In paragraph [0088] – [0089], Cox et al. teaches that each of the correlators 510 provides a portion of the incoming signal to the combiner 516. The combiner control module 550 evaluates various characteristics of the incoming signal and, based on the evaluation, provides appropriate input to the combiner 516 and the correlators 510.

In paragraph [0090], the combiner control module 550 alters the duty cycle of each correlator based on the incoming signal. If the incoming signal is generally weak

and contains a number of multipath components, then the combiner control module 550 enables the maximum number of correlators 510, thereby capturing the weak signal. Alternatively, if the signal properties evaluation module 130 indicates that the signal is generally strong and comprises relatively few (one or two) multipath components, then the control module 550 instructs a number of the correlators 510 to suspend operation.

Nara and Cox teachings are in the same field of endeavor. Cox teachings has the advantage of reducing power consumption of the receiver. Because suspending operation of a number of the correlators 510 reduces the power consumption of the receiver, which extends battery life, one of ordinary skill in the art at the time the invention was made would have been motivated to modify Nara invention to implement Cox et al., teachings.

Regarding claim 2, as recited in claim 1 rejection, Nara teaches the steps of determining a decoding reliability parameter and identifying one or more candidate transmission rates at which said encoded communication has been reliably decoded based upon said decoding reliability parameters, wherein said identifying is performed by comparing said decoding reliability parameters with threshold values.

Cox et al. further teaches if the incoming signal is generally weak and contains a number of multipath components, then the combiner control module 550 enables the maximum number of correlators 510, thereby capturing the weak signal. Because Cox teachings emphasize reduction of power consumption, one of ordinary skill in the art at the time the invention was made would have been motivated to only add multipath

components when necessary, e.g, if the reliability parameter is still less than a threshold value.

Regarding claim 3, Nara does not expressly teach the step of probing as set forth in the application claim.

In column 20 lines 15-25, Nara further suggests that the operation of the CDMA receiver according to this embodiment of the invention provides for dynamic adjustment in response to the transmission state of a channel (e.g. the relative strength of multipath components). Such adjustment is performed by selecting threshold values 320, 321, 322, and 323 in accordance with a transmission state prediction signal 319 representative of the relative strength of multipath signal components of a transmission. Hence, because Nara suggests that the operation of the CDMA receiver according to this embodiment of the invention provides for dynamic adjustment in response to the transmission state of a channel, one of ordinary skill in the art at the time the invention was made would have recognized that the act of providing dynamic adjustment in response to the transmission state of a channel would include the step of probing as claimed in the application claim.

Regarding claim 5, Nara does not expressly teach employing binary modulation as claimed in the application claim.

However, Nara teaches a method of receiving variable transmission rates in variable rate transmission systems. Because binary modulation would produce a

transmission rate and Nara teachings can still accurately determine the actual transmission rate of a received communication irrespective of the variation in the relative magnitudes of the possible transmission rates and irrespective of the magnitude of the characteristic bit error rate for the received communication, one of ordinary skill in the art would have recognized that Nara teachings can be modified to receive binary type of modulation.

As also shown in FIG. 7, Nara further teaches demodulation means 302, 303, and 304 produce the demodulated output signals 314, 315, and 316, which respectively contain streams of detected symbols corresponding to each of the multipath components of the incoming transmission. The demodulation means 302, 303, and 304 also provide outputs 311, 312, and 313, which indicate signal correlation levels representative of the detected power in each of the demodulated signals 314, 315, and 316. In view of that, the reliability parameter is proportional to the received detected power, which is in turn proportional to the absolute value of the estimate of the received signal.

Regarding claim 7, as recited in claim 1 rejection, because the decoding reliability parameters are compared with threshold values, one ordinary skill in the art at the time the invention was made would have recognized that the decoding reliability parameters can be modified to include the claimed confidence criterion.

Regarding claim 8, in column 3 lines 5-15, Nara teachings provides improved accuracy in the determination of a transmission rate by permitting adjustment of the threshold values used to determine the accuracy of decoding at a particular transmission rate based on measured reception conditions, including the relative strength of multipath components of a transmission.

Regarding claim 9, claim is rejected on the same ground as for claim 8 because of similar scope. Furthermore, because Nara teaches decoding at a particular transmission rate based on measured reception conditions, including the relative strength of multipath components of a transmission, the measured reception conditions take into account the noise level of the transmission channel.

Regarding claim 11, in column 2 lines 30-40, Nara method is accurately determining the actual transmission rate of a received communication irrespective of the variation in the relative magnitudes of the possible transmission rates and irrespective of the magnitude of the characteristic bit error rate for the received communication. IN view of that, Nara teachings are transparent to the transmission systems.

Regarding claim 12, claim is rejected on the same ground as for claim 1 because of similar scope.

Regarding claim 13, claim is rejected on the same ground as for claim 2 because of similar scope.

Regarding claim 14, claim is rejected on the same ground as for claim 3 because of similar scope.

Regarding claim 16, claim is rejected on the same ground as for claim 5 because of similar scope.

Regarding claim 18, claim is rejected on the same ground as for claim 7 because of similar scope.

Regarding claim 19, claim is rejected on the same ground as for claim 8 because of similar scope.

Regarding claim 20, claim is rejected on the same ground as for claim 9 because of similar scope.

Regarding claim 22, claim is rejected on the same ground as for claim 11 because of similar scope.

Regarding claim 23, claim is rejected on the same ground as for claim 1 because of similar scope. Nara does not expressly teach a computer program as set forth in the application claim.

In column 9 lines 15-35, because Nara further suggests threshold values for the respective transmission rates may be determined dynamically with the aid of sequential logic or a microcode or software implementation based upon the results of current decoding operations, therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify Nara teachings to perform software implementation to execute the method as taught by Nara.

Regarding claim 24, claim is rejected on the same ground as for claim 2 because of similar scope.

Regarding claim 25, claim is rejected on the same ground as for claim 3 because of similar scope.

Regarding claim 27, claim is rejected on the same ground as for claim 5 because of similar scope.

Regarding claim 29, claim is rejected on the same ground as for claim 7 because of similar scope.

Regarding claim 30, claim is rejected on the same ground as for claim 8 because of similar scope.

Regarding claim 31, claim is rejected on the same ground as for claim 9 because of similar scope.

Regarding claim 33, claim is rejected on the same ground as for claim 11 because of similar scope.

Allowable Subject Matter

4. Claims 4, 6, 10, 15, 17 and 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

McDonough U.S. 7,031,374 B1 discloses "System and method for selecting sample streams in direct sequence spread spectrum communications"

Shen et al. U.S. 5,952,963 discloses "Advanced Antenna Diversity Mechanism".

Tanaka et al. U.S. 7,113,548 B2 discloses "OFDM Transmission System Transceiver And Method".

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khanh Tran whose telephone number is 571-272-3007. The examiner can normally be reached on Monday - Friday from 08:00 AM - 05:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KCT

Khanh Cong Tran
04/27/2007

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